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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,993	02/04/2002	Thomas Kemp	450117-03755	4229

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

ARMSTRONG, ANGELA A

ART UNIT	PAPER NUMBER
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2626

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/19/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/066,993

Applicant(s)

KEMP, THOMAS

Examiner

Angela A. Armstrong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 7-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the Office Action mailed March 10, 2006, applicant has amended claims 1-13, without adding new matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Acero et al (US Patent No. 5,604,839).

Acero discloses a method and system for improving speech recognition through front-end normalization of feature vectors.

3. Regarding claim 1, Acero discloses Method for recognizing speech, wherein in a preprocessing section (S2) a step of performing a variance normalization (VN) is applicable to a feature vector of cepstral coefficients of a received speech signal thereof, said preprocessing section (col. 3, line 22 continuing to col. 8, line 24) comprising the steps of: performing a statistical analysis (S11) of said feature vector of cepstral coefficients of the input/received speech signal, thereby generating and/or providing statistical evaluation data (ED) (col. 3, line 56 to col. 6, line 67), generating and/or providing normalization degree data (ND) from said statistical evaluation data (ED) (col. 3, line 56 to col. 6, line 67), and performing a variance normalization (VN) on said

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feature vector of cepstral coefficients of the input speech signal in accordance with said normalization degree data (ND)--in particular with a normalization strength corresponding to said normalization degree data (ND)--with normalization degree data having a value or values being 0 with respect to a given threshold value indicating that no variance normalization (VN) has to be performed (col. 5, lines 11-16).

Regarding claim 2, Acero discloses the said statistical analysis (S11) is performed in an at least piecewise or partial frequency-dependent manner (col. 3, line 52 to col. 4, line 7).

Regarding claim 3, Acero discloses the evaluation data (ED) and/or said normalization data (ND) are generated so as to reflect at least a piecewise frequency dependency (col. 3, line 57 to col. 4, line 7).

Regarding claim 4, Acero discloses the statistical analysis (S11) includes a step of determining signal-to-noise ratio data (SNR) or the like, in particular in a frequency-dependent manner (col. 4, lines 8-61).

Regarding claim 5, Acero discloses the discrete normalization degree values (Dj) is used as said normalization degree data (ND), in particular each of which being assigned to a certain frequency interval (f_j , Δf_j), said intervals (f_j , Δf_j) having essentially no overlap (col.3, lines 57 to col. 4, line 7; col. 5, lines 46-67).

Regarding claim 6, Acero discloses the discrete normalization degree values (Dj) has a value within the interval of 0 and 1 (correction factor -- col. 3, line 56 to col. 6, line 67).

Regarding claim 9, Acero discloses a transfer function between said statistical evaluation data (ED) and said normalization degree data (ND) is used for generating

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said normalization degree data (ND) from said statistical evaluation data (ED) (col. 4, line 8 to col. 5, line 16).

Regarding claim 10, Acero discloses a piecewise continuous, continuous or continuous differentiable function or the like is used as said transfer function, so as to particularly achieve a smooth and/or differentiable transfer between said statistical evaluation data (ED) and said normalization degree data (ND) (col. 4, line 8 to col. 5, line 16).

Regarding claim 11, Acero discloses a theta-function; a sigmoidal function or the like is employed as said transfer function (col. 4, line 8 to col. 5, line 16).

Regarding claim 12, Acero discloses the variance normalization (S14) is carried out by multiplying said speech signal with a reduction factor (R) being a function of said statistical evaluation data (ED), in particular of the signal noise, and the normalization degree data (ND), in particular of the normalization degree values (Dj) and/or in particular in a frequency-dependent manner (col. 4, line 8 to col. 8, line 11).

Regarding claim 13, Acero discloses a reduction factor (R) is used having the--in particular frequency-dependent--form $R = 1 / (1 + (\sigma - 1) \cdot D)$ with σ denoting the temporal standard deviation of the speech signal S), a component and/or a feature thereof and D denotes the normalization degree value in question (col. 4, line 8 to col. 8, line 11).

Response to Arguments

4. Applicant's arguments filed June 12, 2006, have been fully considered but they are not persuasive. Applicant argues Acero does not disclose, or suggest, a speech signal preprocessing, including performing a statistical analysis of the speech signal to generate a statistical evaluation data, generating normalization degree data from the statistical evaluation data, and performing variance normalization on the speech signal in accordance with the normalization degree data, as recited in amended Claim 1. The Examiner cannot concur. Acero specifically teaches a preprocessing section (col. 3, line 22 continuing to col. 8, line 24) comprising the steps of: performing a statistical analysis on a feature vector of cepstral coefficients of the input/received speech signal, thereby providing statistical evaluation data (col. 3, line 56 to col. 6, line 67), providing normalization degree data from the statistical evaluation data (col. 3, line 56 to col. 6, line 67), and performing a variance normalization (VN) on the feature vector of cepstral coefficients of the input speech signal. Although the system uses feature vectors of the speech signal, these feature vectors are representative of the received speech signal, and as implementation of speech and signal processing algorithms via digital processing requires analog-to-digital conversion, windowing and extraction of desired features for processing, the teachings of Acero provide adequate support for a "speech signal." Further, Acero also teaches one of ordinary skill in the art would recognize and appreciate that other forms of feature vectors can be used (see col. 4, lines 5-7).

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Allowable Subject Matter

5. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

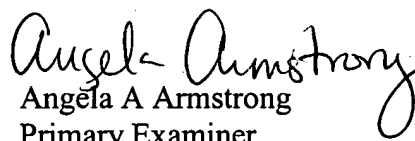
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 571-272-7598. The examiner can normally be reached on Monday-Thursday 11:30-8:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Angela A Armstrong
Primary Examiner
Art Unit 2626

AAA
August 25, 2006